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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/586,561	06/02/2000	Juha Ylitalo	4770.81503	7618

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Banner & Witcoff Ltd  
Eleventh Floor 1001 G Street NW  
Washington, DC 20001-4597

EXAMINER

WILLIAMS, LAWRENCE B

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/586,561

Applicant(s)

YLITALO ET AL.

Examiner

Lawrence B Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 January 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17, 26, 29-42, 51-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26 and 29-42 is/are allowed.
- 6) ☒ Claim(s) 1,8,10,11,14-17,51 and 52 is/are rejected.
- 7) ☒ Claim(s) 2-7,9,12,13,53 and 54 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 8, 15, 51-52 are rejected under 35 U.S.C. 102(e) as being anticipated by Boros et al. US Patent 6,615,024 B1).

(1) With regard to claim 1, Boros et al. discloses in Fig. 7, a method comprising steps of receiving at least two space-time coded (col. 2, line 58 - col. 3, line 16) signals from an antenna system associated with a first station; determining complex channel state information based on the received space-time coded signals; and sending the complex channel state information to the first station. Fig. 7 discloses the subscriber unit receiving two-downlink calibration bursts from a base station (first unit), the subscriber unit determining a downlink signature estimate (complex channel state information) and sending the downlink complex channel state information back to the base station (first station). Boros et al. also discloses a method for implementing the same

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process for sub arrays of the antenna array which would also incorporate applicant's cited at least two space-time coded signals.

(2) With regard to claim 8, Boros et al. also discloses the method of claim 1, wherein: the antenna system includes a multi-beam antenna array (Fig. 8); the step of receiving receives first and second space-time coded signals from respective first and second beams of the multi-beam antenna array; and the step of determining determines the complex channel state information based on the received first and second space-time coded signals (col. 20, line 55-col. 21, line 13).

(3) With regard to claim 15, Boros et al. also discloses wherein the complex channel state information includes at least one weight, each weight including amplitude and phase angle information (col. 12, line 64-col. 13, line 13).

(4) With regard to claim 51, Boros et al. discloses in Fig. 7, wherein the determining step occurs at a second station (subscriber unit).

(5) With regard to claim 52, Boros et al. also discloses wherein a processor at a second station (col. 21, lines 20-24) performs the determining step.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boros et al. as applied to claim 1 above, and further in view of Canada et al. (US Patent 6,546,236 B1).

As noted above, Boros et al. discloses all limitations of claim 1 above, including the step of receiving receives first and second space-time coded (col. 2, line 58-col. 3, line 16) signals from respective first and second diversity antennas; and the step of determining determines the complex channel state information based on the received first and second space-time coded signals (col. 20, line 55-col. 21, line 13).

Boros et al. does not disclose wherein the first and second antennas being one of first and second orthogonally polarized antennas and first and second antennas spatially separated by at least one wavelength.

However, Canada et al. discloses (Fig. 1, elements 22, 24) first and second antennas being one of first and second orthogonally polarized antennas and first and second antennas spatially separated by at least one wavelength (col. 2, lines 34-43).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the teachings of Canada et al. as a method of enhancing reception of a transmitted signal.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boros et al. as applied to claim 1 above, and further in view of Parkvall et al. (6,542,736 B1).

As noted above, Boros et al. discloses all limitations of claim 1 above. Boros et al. does not disclose the method of claim 1, further comprising a step of transmitting the first and second space-time coded signals with first and second signature codes embedded in the respective first

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and second space-time coded signals, the first and second signature codes being substantially orthogonal so that a second station can separate a composite signal into the first and second space-time coded signals, wherein the step of receiving receives the first and second space-time coded signals as the composite signal at the second station.

However, Parkvall et al. discloses an efficient radio link adaptation wherein he discloses a sector antenna combination with corresponding orthogonal subchannel (code), sub-channels summed and transmitted and decoding of the received composite signal at the base station.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Parkvall et al. as a method of providing an improved sector selection scheme (col. 3, lines 65-67).

6. Claims 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boros et al. as applied to claim 1 above, and further in view of Canada et al. (US Patent 6,546,236 B1).

As noted above, Boros et al. discloses all limitations of claim 1 above. Boros et al does not teach the method of claim 1, wherein the step of determining complex channel state information includes determining a correction phase angle to adjust a first phase of a first space-time coded signal transmitted from a first antenna relative to a second phase of a second space-time coded signal transmitted from a second antenna so that the first and second space-time coded signals constructively reinforce at a second station.

However, Canada et al. discloses determining a phase error signal and corrects a phase angle between two signals transmitted from two respective antennas to form a reinforce signal for demodulation (col. 4, lines 13-46).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Canada et al. to provide a strong received signal irrespective of any depolarization.

(2) With regard to claim 17, Canada et al. also discloses the method of claim 16, wherein the step of determining a correction phase angle includes: measuring a first phase angle defined by the first phase; measuring a second phase angle defined by the second phase; and determining the correction phase angle defined to be a difference between the second phase angle and the first phase angle (col. 3, lines 20-25; col. 4, lines 13-46).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Canada et al. to provide a strong received signal irrespective of any depolarization.

### ***Double Patenting***

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225

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USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claim 5 of Application No. 11/068,855 contain(s) every element of claim(s) 1, 8, 10 of the instant application and as such anticipate(s) claim(s) 1, 8, 10 of the instant application.

9. Claim 7 of Application No. 11/068,855 contain(s) every element of claim(s) 15 of the instant application and as such anticipate(s) claim(s) 15 of the instant application.

"A later patent claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or **anticipated by**, the earlier claim. *In re Longi*, 759 F.2d at 896, 225 USPQ at 651 (affirming a holding of obviousness-type double patenting because the claims at issue were obvious over claims in four prior art patents); *In re Berg*, 140 F.3d at 1437, 46 USPQ2d at 1233 (Fed. Cir. 1998) (affirming a holding of obviousness-type double patenting where a patent application claim to a genus is anticipated by a patent claim to a species within that genus). " *ELI LILLY AND COMPANY v BARR LABORATORIES, INC.*, United States Court of Appeals for the Federal Circuit, ON PETITION FOR REHEARING EN BANC (DECIDED: May 30, 2001).

*Allowable Subject Matter*



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10. Claims 26, 29-42 are allowed.

11. Claims 2-7, 9, 12-13, 53-54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

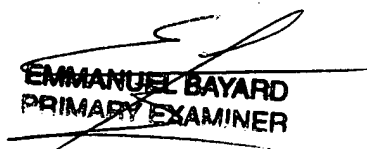
*Conclusion*

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammad can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

  
EMMANUEL BAYARD  
PRIMARY EXAMINER